

ABSTRACT

A communication system transmits and receives a plurality of spread-spectrum signals having differences in at least one diversity parameter. The signals are highly correlated when their diversity parameters are similar, and the signals are uncorrelated when at least one diversity parameter is different. Any combination of a transmitter, a receiver, and a communication channel may diversity-encode the signals to effect differences in their diversity parameters. A receiver diversity-decoder compensates for differences in a diversity-parameter of at least one received signal to make the signal highly correlated with at least one other received signal. A correlator combines at least two of the received signals to recover an embedded information signal. The communication system enables the use of true-noise signals for spreading information signals, provides simplified receiver designs, and enables antenna arrays to spatially process spread-spectrum signals.